

Sink or Swim: The Marine Corps Capacity to Conduct a Marine Expeditionary Brigade Amphibious Assault Using Expeditionary Maneuver Warfare

**A Monograph
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ABSTRACT

SINK OR SWIM: THE MARINE CORPS CAPACITY TO CONDUCT A MARINE EXPEDITIONARY BRIGADE AMPHIBIOUS ASSAULT USING EXPEDITIONARY MANEUVER WARFARE by LtCol Cliff J. Weinstein, USMC, 48 pages.

Since 1991, there has been a significant drop in the number of amphibious ships, a change in the forcible entry concept and a singular military and fiscal focus on the land wars in Iraq and Afghanistan. The current state of amphibious assault ships, surface assault vehicles and assault support aircraft has suffered because of these events. Today, the readiness and capacity of the Navy and Marine Corps to plan and execute an amphibious landing on a beach against a prepared and modern enemy using modern doctrinal concepts is questionable. Can the Marine Corps conduct a Marine expeditionary brigade or MEB amphibious assault using Expeditionary Maneuver Warfare?

This study addresses the equipment issues surrounding the expeditionary brigade's ability to conduct an amphibious assault under expeditionary maneuver warfare in three sections. The first section of the paper provides a background as to why the United States requires a strategic amphibious capability requirement today and its relevance against the projected future threat. The second section of paper uses the criteria of sufficiency and capability to examine the effect of equipment on the Navy and Marine Corps ability to conduct an amphibious assault using both the traditional and the contemporary Expeditionary Maneuver Warfare doctrinal concepts. The examination focuses on amphibious assault ships, AAV7A1 amphibious assault vehicles, expeditionary fighting vehicles (EFV), Sea Knight helicopter, and Osprey tiltrotor aircraft. The third section of the paper presents the conclusion that the Marine Corps can conduct a Marine expeditionary brigade amphibious assault, but not using Expeditionary Maneuver Warfare.

Due to the current military situation in the world and the focus of the Marine Corps on the war in Iraq and Afghanistan, the Marine Corps cannot conduct a Marine expeditionary brigade amphibious assault using the Expeditionary Maneuver Warfare. This is due to shortfalls in the quantity, availability and capability of current Navy amphibious shipping and Marine Corps equipment. There are solutions to the equipment dilemma. The Marine Corps can revalidate the strategic amphibious assault requirement. A revalidated strategic assault requirement would compel the Navy to acquire the necessary amphibious assault ships to lift the force. The Marine Corps must reiterate to Congress the requirement to procure the original number of expeditionary fighting vehicles, or rapidly develop or obtain a replacement vehicle to close the amphibious vehicle gap. Finally, the Marine Corps should look into blending the Osprey program with existing medium lift platforms to obtain an economically realistic, sustainable, and capable amphibious assault lift capability. In order to maintain an effective amphibious assault capability, current equipment shortfalls must be resolved. Once resolved, the Navy and Marine Corps will have enhanced their capacity to execute a Marine expeditionary brigade amphibious assault employing Expeditionary Maneuver Warfare.

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Introduction

A warm, humid wind blew across the flight decks of the amphibious assault ships *Nassau* and *Iwo Jima* in the pre-dawn darkness of January 23, 1991. Harriers from 4th Marine Expeditionary Brigade's (4th MEB) air combat element, along with Harriers from 5th MEB were busy softening up land targets for the amphibious assault now underway. The Marines loaded into the cramped troop spaces of the amphibious assault vehicles (AAVs) and onto the CH-46 assault helicopters prepared to launch into the dark just before the first glimmers of sunlight broke over the horizon. The fifty-two AAVs of 4th MEB, holding almost one thousand combat-loaded Marines, surged out of the amphibious fleets flooded well decks and into the topaz blue waters of the Persian Gulf. Simultaneously, the helicopters from across the forty-one ship Amphibious Task Force lifted off flight decks, formed into assault formations, and sped towards their objectives carrying the first waves of three airlifted infantry battalions. By the afternoon, the assault waves had landed, secured the beach and initial objectives, and logistics were flowing ashore. In the end, over sixty-five hundred Marines and five hundred and seventy-four vehicles had landed. The Commanding General of 4th MEB, MajGen. Harry W. Jenkins Jr. was satisfied that the largest amphibious assault operations since the Korean War was a success.¹

The amphibious assault described above was part of an exercise, "Sea Soldier IV," which took place during Operation Desert Storm 1991. The exercise, the largest amphibious exercise in almost twenty-seven years, was the culmination of almost five months of preparation for

¹ Lieutenant Colonel Ronald J. Brown, *U.S Marines in the Persian Gulf, 1990-1991: With the Marine Forces Afloat in Desert Shield and Desert Storm* (Washington, D.C.: Government Printing Office, 1998), 108-9; Thomas D. Dinackus, *Order of Battle: Allied Ground Forces of Operation Desert Storm* (Central Point, Oregon: Hellgate Press, 2000), 18-22.

Operation Desert Storm.² The goals of the exercise were to convince the Iraqis that coalition forces were going to attack from the sea, and to rehearse a full-scale Marine expeditionary brigade amphibious assault, in case an actual landing was later required. The Marine Corps' focus, the entire nation's focus, was on restoring the sovereignty of this small Gulf nation. During Operation Desert Storm, the Marine Corps successfully conducted a Marine expeditionary brigade -sized amphibious assault in the Persian Gulf on January 23, 1991.³

Issues and Elements of the Modern-Day MEB Assault

In 2010, almost twenty years after the Persian Gulf War, can the Marine Corps conduct a Marine expeditionary brigade amphibious assault and do so under the current Expeditionary Maneuver Warfare (EMW) concept? Since 1991, there has been a significant drop in the number of amphibious ships, a change in the forcible entry concept and a military and fiscal focus on the land wars in Iraq and Afghanistan. The quantity and quality of specialized amphibious assault ships, vehicles, and helicopters necessary to execute a Marine expeditionary brigade -sized amphibious assault using the Expeditionary Maneuver Warfare are currently insufficient.

The specialized amphibious assault equipment, which drives concept and doctrine innovations, is the critical factor enabling the Marine expeditionary brigade to conduct a successful amphibious assault. Amphibious equipment issues are not new to amphibious operations. During the battle of Tarawa during World War II, the lack of sufficient armored amphibious landing craft forced the assault force to land in unarmored landing craft. The lack of armored assault craft left the Marines vulnerable to the withering Japanese defensive fires, causing extremely high casualties. The tragedy of Tarawa is in danger of repeating itself today if the

² The largest amphibious exercise since the Korean War was *Exercise Steel Pike*, which took place in Spain throughout October 1964. The force included 21,654 Marines and sailors of II MEF and sixty ships. Brown, *U.S Marines in the Persian Gulf, 1990-1991*, 104.

³ Department of Defense, *Conduct of the Persian Gulf War, Final Report to Congress* (Washington, D.C.: Government Printing Office, 1992), 227.

Navy-Marine Corps Team cannot quickly resolve the equipment shortfalls generated by the current doctrines of Expeditionary Maneuver Warfare and Seabasing.⁴

The paper addresses the issues surrounding the Marine expeditionary brigades' ability to conduct an amphibious assault under Expeditionary Maneuver Warfare in three sections. The first section of the paper opens with a description of the operational organization of the Marine Corps amphibious forces, the air ground task force, and the Navy's Expeditionary Strike Group. These two organizations provide the structure and capability to Marine expeditionary formations. The section then explores the relevance of amphibious assaults as a power projection tool for the United States and the law and policy directing the Marine Corps strategic amphibious assault requirement. The section closes with a projection of the future threats relevant to the maintenance of a robust strategic amphibious assault capability and the effect on Marine Corps and Navy doctrine.

The second section of the study scrutinizes the effect of amphibious assault ships, assault vehicles, and aircraft sufficiency and capability on the MEB's ability to conduct an amphibious assault using the contemporary Expeditionary Maneuver Warfare doctrinal concept.⁵ The criteria of sufficiency focuses on the quantity and operational availability of the equipment to a Marine Expeditionary Brigade for and during an amphibious assault. Capability focuses on the

⁴ In 1943, during the Tarawa operation, there were major shortages in fire support ships and pre-assault fires provided by the Navy, under Admirals Spruance and Turner. Shortages in armored troop carriers known as LVTs (landing vehicle, tracked) were a major factor in the high casualties of the operation. The LVTs design allowed it to crawl over the shallow reefs that covered the Tarawa's shallows. For Tarawa however, there were only enough LVTs to get the initial assault wave ashore. The follow-on waves had to use the unarmored LVCP, which was the traditional wooden boat-like landing craft seen throughout World War II. Murderous Japanese machine-gun and mortar fire slaughtered the follow-on waves as they assaulted the beach. In addition, many Marines, weighed down with heavy combat equipment, drowned as they struggled to swim ashore after their LVCPs grounded on the coral reefs. Allan R. Millet, *Semper Fidelis: The History of the United States Marine Corps* (New York: MacMillan Publishing Co., Inc., 1980), 295-398.

⁵ Marine Corps, *Marine Corps Operations*, MCDP 1-0 (Washington, D.C.: Government Printing Office, 2001), 2-14 - 2-17.

effectiveness and efficiency of equipment in providing a specific function to an amphibious assault. The section opens with an assessment of the doctrine and equipment existing in the Navy and Marine Corps during the 1991 Gulf War. The Gulf War's Operations Desert Shield and Desert Storm provide an excellent model illustrating the challenges affecting the three specialized platforms required to move and conduct a traditional Marine expeditionary brigade amphibious assault against a defended beach. The assessment is used as a baseline in analyzing the state of current and future amphibious assault doctrine and capabilities. The paper presents an appraisal of Navy's capacity to provide the Marine expeditionary brigade sufficient and capable amphibious assault shipping under both traditional and Expeditionary Maneuver Warfare doctrines. The amphibious assault vehicle and aircraft are appraised for their sufficiency and capability to support the Marine expeditionary brigade under both traditional and Expeditionary Maneuver Warfare doctrines.

The third section of the paper presents the conclusion and recommendations derived from the study. The paper concludes that the Marine Corps cannot presently conduct a Marine expeditionary brigade amphibious assault using the Expeditionary Maneuver Warfare doctrinal concept due to insufficient and incapable equipment. Three recommendations are presented to assist the Navy and Marine Corps in solving equipment problems that currently prevent the Marine expeditionary brigade from using Expeditionary Maneuver Warfare during an amphibious assault. The first recommendation entails the Marine Corps revalidation of the strategic amphibious assault requirement, and the resulting amphibious shipping requirement. The Navy should then be required to provide the required amphibious assault shipping. The second recommendation involves the Marine Corps stressing to Congress the need to procure the original number of expeditionary fighting vehicles. Failing full procurement, the Marine Corps must rapidly develop or obtain a replacement vehicle to close the amphibious vehicle gap. The third recommendation urges the Marine Corps to look into blending the Osprey program with existing medium lift platforms to obtain an economically realistic, sustainable, and capable amphibious

assault lift capability. By following the recommendations, the Navy and Marine Corps can mitigate the challenges in conducting a modern day Marine expeditionary brigade amphibious assault using Expeditionary Maneuver Warfare.

The Marine Corps Operational Organization

An understanding of Marine Corps organization is critical to grasping the importance of specialized equipment in executing a Marine expeditionary brigade amphibious assault. The Marine Corps operates primarily using a task-organized unit known as a Marine air ground task force (MAGTF). The MAGTF provides commanders with a scalable and flexible expeditionary force capable of responding to threats across the spectrum of conflict. This organization is designed to operate from aboard amphibious ships, providing the combatant commander with a forward-deployed amphibious forcible entry capability. The Marine air ground task force is a fully integrated combined arms organization consists of four elements: the command element, containing the command group; the ground combat element, containing units of the infantry division; the air combat element, containing squadrons and aircraft of the air wing; and the logistics combat element, containing the supply and support units of the logistics group.

There are four different-sized Marine air ground task forces employed by the Marine Corps. The largest warfighting Marine Corps organization is the Marine expeditionary force (MEF). There are three standing Marine expeditionary forces in the Marine Corps, varying in size from 17,000 to 63,000 Marines. Each Marine expeditionary force is commanded by a Lieutenant General and has an infantry division, an air wing, and a logistics group. The Marine expeditionary brigade is the middle-sized Marine air ground task force and varies in size between eight and twenty thousand Marines. The Marine expeditionary brigade is commanded by either a Major General or Brigadier General, has between two and five infantry battalions, an air group, and a logistics regiment. The importance of the Marine expeditionary brigade is that it is the current unit of measure for determining the strategic amphibious assault capability. The Secretary of Defense determines the number of Marine expeditionary brigades that are required and lifted by

amphibious ships. The amphibious lift goals as approved by the Secretary of Defense since 1980 displayed in Table 1 show a continuous reduction in the strategic lift goals.⁶ Marine expeditionary brigade The Marine expeditionary unit (MEU) is the smallest Marine air ground task force and the standard unit routinely deployed as part of peacetime Navy fleet rotations. A Colonel commands the Marine expeditionary unit and has an infantry battalion, a composite air squadron, and a logistics battalion. The Marine expeditionary unit has about 2,200 Marines. The special purpose MAGTF (SPMAGTF) is a task organized unit that varies in size and composition according to the specific mission assigned and may not have some of the elements of the standard Marine air ground task force.⁷

Year	Goal	Troops
1980	1.15 MEFs	66,252
1981	1 MEF AE + 1 MEB	53,240
1982	1 MEF AE + 1 MEB	46,810
1991	2.5 MEB AEs	33,793
2006	2.0 MEB AEs	23,016

Table 1: Amphibious Lift Goals Since 1980⁸

The Navy's Amphibious Fleet Operations

The Navy is the Marine Corps' primary partner in the amphibious assault arena. The Navy owns and operates the amphibious assault, and cargo ships that allow the Marine Corps to put forces ashore from the sea. The purpose of an amphibious ship is to carry Marines, equipment,

⁶ Ronald O'Rourke, *Navy LPD-17 Amphibious Ship Procurement: Background, Issues and Options for Congress*, Rpt. No. RL34476, Congressional Research Service (Washington, D.C.: Government Printing Service, 2009), 3-6.

⁷ Marine Corps, *U.S. Marine Corps Concepts and Programs 2009* (Washington, D.C.: Government Printing Office, 2009), 35-39.

⁸ Marine Corps, *U.S. Marine Corps Concepts and Programs 2009*, 35-39; Ronald O'Rourke, *Navy LPD-17 Amphibious Ship Procurement*. 5.

and supplies to the assault area. Amphibious ships provide berthing, storage, aircraft, and amphibious vehicle hangers, and launch points for the task force. The amphibious assault ships are designed to support the full spectrum of amphibious operations from forcible entry against a hostile force to humanitarian and peacetime engagement operations. Amphibious shipping can be broken into two major categories. The “big-decks” are similar to conventional aircraft carriers, but they are smaller, have no catapult launch systems and carry Marine Corps helicopters and the vertical/short take-off and landing Harrier aircraft. The “big-decks,” the Landing Helicopter Assault (LHA) and the Landing Helicopter Deck (LHD) ships carry the majority of the aircraft of the MAGTF’s air combat element. The “small-decks” have small flight decks, with large well decks and cargo areas. The “small-decks,” the Landing Platform Dock (LPD) and the Landing Ship Dock (LSD) ships are designed to carry the Marines and equipment of the MAGTFs ground combat element.⁹

What determines the size of the amphibious force that the Navy buys to lift the MAGTF? Three factors have an obvious effect on the number of amphibious ships in the Navy. The greatest factor affecting the amphibious fleet size is cost. The Navy must consider the overall long-term cost to build and maintain its amphibious assault ships.¹⁰ The second factor affecting the size of the amphibious fleet is the overall number of ships that the Navy justifies to Congress on a yearly

⁹ Ronald O’Rourke, *Navy LPD-17 Amphibious Ship Procurement*, 2-3; Ronald O’Rourke, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, Rpt. No. RL32665, Congressional Research Service (Washington, D.C.: Government Printing Service, 2009), 1.

¹⁰ The smallest fleet the Navy fielded since 1917 was 308 ships. The largest fleet afloat was at the end of World War II when the Navy had 6,768 active ships. At the height of amphibious operations during World War II, the Navy was required to provide shipping for an entire amphibious corps. Though the Navy only had 121 amphibious ships at the end of 1942, they quickly rose to a high of 2,547 by the end of the war. The Navy fiscally could not and did not need to maintain such a robust amphibious capability after World War II ended and the amphibious ship requirement quickly shrunk. U.S. Navy, Naval Historical Center, “U.S. Navy Active Ship Force Levels, 1917- Present,” <http://www.history.navy.mil/branches/org9-4.htm>, (accessed January 26, 2010). O’Rourke, *Navy LPD-17 Amphibious Ship Procurement*, 7; House Committee on Armed Services, Subcommittee on Seapower and Expeditionary Forces, *The Long-Term Outlook for the U.S. Navy’s Fleet*, Statement of Eric J. Labs, Senior Analyst for Naval Forces and Weapons, 111th Cong., 2nd sess., January 20, 2010, 2-3.

basis through its *Shipbuilding Plan*. The percentage of amphibious ships has remained relatively constant, at about sixteen percent, but the size of the fleet has fluctuated greatly, and therefore, the number of amphibious ships has fluctuated, not by need, but as a fixed percent of the overall ships in the fleet. The third factor is the strategic requirement for amphibious forcible entry expressed in terms of embarkable Marine expeditionary brigades. The strategic requirement for an amphibious forcible entry capability has varied between two and three Marine expeditionary brigades worth of lift for the last twenty years.¹¹

The Navy operates its amphibious ships in formations called expeditionary strike groups (ESGs). The group is a flexible, self-sustaining force capable of conducting operations across the spectrum of conflict. It is organized around an amphibious ready group (ARG). The Marine expeditionary unit's worth of Marines embarked on the amphibious ready group provides the amphibious forcible entry capability to the expeditionary strike group. Amphibious ready groups traditionally consisted of four amphibious ships, but were recently reduced to three. This background is relevant, because the Navy envisions reducing the number of expeditionary strike groups it maintains from eleven to nine and cutting the number of amphibious ships from thirty-three to twenty-seven.¹²

Amphibious Assault Relevance

Is the maintenance of an amphibious assault force and supporting assault shipping relevant to American force projection? This section examines the relevancy of the amphibious assault capability in three parts. The first part establishes the historical relevance and

¹¹ O'Rourke, *Navy LPD-17 Amphibious Ship Procurement*, 7; House Committee on Armed Services, Subcommittee on Seapower and Expeditionary Forces, *The Long-Term Outlook for the U.S. Navy's Fleet*, Statement of Eric J. Labs, Senior Analyst for Naval Forces and Weapons, 111th Cong., 2nd sess., January 20, 2010, 2-3.

¹² U.S. Navy, "The Expeditionary Strike Group," http://www.navy.mil/navydata/navy_legacy_hr.asp?id=147, (accessed February 05, 2010); Congressional Budget Office, *Long-Term Implications of the Fiscal Year 2010 Defense Budget* (Washington, D.C.: Government Printing Office, 2010), 26.

requirements of amphibious assault operations during the twentieth century, from the First World War to the Persian Gulf conflict. The second part discusses the relevance that an amphibious assault capability provides to the United States in confronting the twenty-first century threat. The third part examines the changes in amphibious assault doctrine in response to the emerging threats created by a globalized world.¹³

The Marine Corps became interested in formalizing amphibious operations at the turn of the twentieth century. In the early 1900's, the United States expanded its influence and commerce both east and west and the Navy needed to protect those sea-lanes across the oceans. The Navy needed fleet coaling stations throughout the world to refuel and support ships tasked with providing sea-lane protection. The United States contracted foreign-owned coaling stations to fuel and resupply American warships as an alternative to purchasing new ports and coaling facilities across the globe. As a result, the Navy was wholly reliant on these foreign coaling stations to provide fuel necessary to maintain its naval presence. In the event that a country providing coaling and resupply to the fleet decided to refuse the ships access, the Navy would no longer be able to guarantee free access to trade routes. The Navy tasked the Marine Corps with providing a standing "Advanced Base Force" in order to ensure that the Navy maintained access to coaling and resupply facilities.¹⁴

When the United States entered the First World War, amphibious assault development stopped as Marine Forces deployed to support the land forces of the American Expeditionary Forces in Europe. Though the Marines were not developing amphibious doctrine, they observed the allied amphibious assault debacle at Gallipoli. Gallipoli convinced the British that amphibious

¹³ Sam J. Tangredi, *Globalization and Maritime Power* (Washington, D.C.: National University Press, 2002), 287-8, 409, 417.

¹⁴ Kenneth J. Clifford, *Amphibious Warfare Development in Britain and America from 1920-1940* (Laurens, New York: Edgewood INC., 1983), 23-24; Millet, *Semper Fidelis*, 269-271

operations were “no longer feasible.”¹⁵ Gallipoli convinced the United States Marine Corps of the importance of developing an effective modern amphibious capability.¹⁶ After the First World War ended, the Marines began developing amphibious assault doctrine and the force to execute it. However, the United States tired of war, and wanting to avoid confronting any European adversaries was eager to reduce its military forces, including the Marine Corps, back to a peacetime stranding.¹⁷

The relevancy of the amphibious assault capability developed during the interwar years became apparent during the Pacific campaigns of the Second World War, in places such as Guadalcanal, Iwo Jima, and Okinawa. The American success in the Pacific was in large part due to the robust amphibious assault doctrine created during the 1920s and 1930s by the Marine Corps and executed with the U.S. Army during the war. After the war, the Marine Corps adopted the amphibious operation as a core competency. The enduring importance to the United States of formalizing and maintaining a robust strategic amphibious assault capability was reflected in its codification into The National Security Act of 1947.

Although the strategic importance of sustaining a strategic amphibious capability was incorporated into federal law, some military and civilian leaders in the government maintained that the United States would never again conduct an amphibious assault. In October of 1949, President Truman's Chairman of the Joint Chiefs of Staff, General Omar N. Bradley testified before Congress that: "I predict that large-scale amphibious operations will never occur again."¹⁸

¹⁵ Michael Evans, *Amphibious Operations: The Projection of Sea Power Ashore* (New York:, Brassey's: 1990), 15.

¹⁶ J. Robert Moskin, *The U.S. Marine Corps Story* (New York: McGraw-Hill Book Company, rev. ed., 1987), 207, 223-224; Millet, *Semper Fidelis*, 223-4.

¹⁷ Millet, *Semper Fidelis*, 321-22; Army Center of Military History, *American Military History*, Army Historical Series (Washington, D.C.: Government Printing Office: 1989), 405-6.

¹⁸ House Committee on Armed Services, *Chairman of the Joint Chiefs of Staff, General Omar N. Bradley, Testimony*, 81st Cong., 1st sess., October 1949.

General Bradley's prediction of the end of forcible entry amphibious operations was a popular theme in the highest levels of government. Secretary of Defense Louis A. Johnson stated in a conversation to Admiral Richard L. Connally, "We'll never have any more amphibious operations. That does away with the Marine Corps. And the Air Force can do anything the Navy can do nowadays, so that does away with the Navy."¹⁹ Less than a year later, in September of 1950 the Marine Corps would conduct one of the most successful division-sized amphibious operations in history at Inchon, Korea.²⁰

The Inchon landing reinforced the relevance of a standing force specifically trained and ready to conduct amphibious forcible entry operations. The Marine Corps scrambled to assemble a force of sufficient size to meet General MacArthur's requirements for an amphibious force. The Marine Corps gathered sufficient equipment and the necessary experience capable of planning and executing the assault because it had not yet significantly drawn down from World War II. If the Marines had completed the post-war equipment reductions, it is highly questionable if they could physically conduct the amphibious assault.²¹ Emergent forcible entry requirements like Inchon prove the prudence, necessity, and relevance in maintaining a well-equipped and trained amphibious forcible entry the capability.

It is frequently assumed that the assault on the seawall of Inchon, Korea was the last amphibious assault conducted by the United States. However, seven years later in 1958, the Marine Corps conducted its next amphibious assault in Lebanon. The United States was not at war, but American forces deployed to keep the peace in a failing Lebanon. The Marines planned to conduct an opposed landing in Beirut. As the assault craft closed on the landing beaches, no

¹⁹ Michael Langley, *Inchon Landing, MacArthur's Last Triumph* (New York: Times Books, 1979), 54.

²⁰ Millet, *Semper Fidelis*, 482, 488.

²¹ Millet, *Semper Fidelis*, 539-541.

one was certain that the landing would be unopposed. As the Marines stormed ashore, they were greeted not by machine-gun and mortar fire, but by peaceful civilians and assorted vendors. The Marines successful amphibious landing in Lebanon was possible because of the commitment to maintaining a robust strategic amphibious capability. Amphibious assaults once again established their operational relevance.²²

Through mid-1960s and early-1970s, the Vietnam War consumed the United States. The Marines assumed the same land-based mission as the United States Army in Vietnam. Marine forces, though organized as Fleet Marine Forces, operated predominantly as land-based adviser and combat forces, but they frequently executed amphibious assault missions during the war. Between 1965 and 1969, over fifty mostly small-scale amphibious operations occurred in South Vietnam.²³ Through the Vietnam War, amphibious assaults continued to maintain their relevance and utility as a credible military tool for power projection.

The amphibious assault in the Falklands, though not an American operation, is an example of a successful amphibious assault by the British to regain their possession from the Argentine Army on 21 May 1982. This operation was conducted at the low point in British amphibious readiness. In the mid 1970's, the British Admiralty had deemed amphibious warfare too expensive and obsolete. Due to budgetary constraints, England started divesting itself of its amphibious equipment and mission. When the Falklands crisis developed, the Royal Navy had insufficient amphibious shipping to land an entire force from sea without commercial shipping support. The Admiralty hastily assembled what forces and equipment it could find, including

²² Millet, *Semper Fidelis*, 539-541; Moskin, *The U.S. Marine Corps Story*, 598-606.

²³ Lieutenant Colonel Peter L. Hilgartner, USMC, "Amphibious Doctrine in Vietnam," *Marine Corps Gazette*, January 1969, 28-31; Moskin, *The U.S. Marine Corps Story*, 607-615; Millet, *Semper Fidelis*, 565-68; GlobalSecurity.org, "Military: Amphibious Operations in South Vietnam," <http://www.globalsecurity.org/military/ops/vietnam2-amphibious.htm> (accessed March 04, 2010).

ships on the way to the scrap yard, as well as commercial ferries.²⁴ The Royal Marines planned and successfully assaulted the port of San Carlos using a mix of dated amphibious and commercial ships. Following the Falkland Campaign, the British government realized the folly of discounting the need for an amphibious capability and reversed its naval drawdown plan. The potential debacle demonstrated the necessity for a great naval power to maintain a robust forcible entry from the sea capability.²⁵

The history of Marine Corps amphibious assaults throughout the twentieth century demonstrates the relevance of the strategic requirement for a robust forcible entry from the sea capability for the United States. Today, the Marine Corps conducts a constant battle to maintain a capable and contemporary amphibious assault capability. The conflicts that confronted the United States during the twentieth century validated an enduring requirement for the United States to maintain a robust strategic amphibious assault capability. In the final decade of the twentieth century the need for the U.S. to exert its military muscle in the defense of allies abroad brought into focus once again the strategic importance of possessing the capability to project a capable and effective Marine expeditionary brigade amphibious assault capability. In 1990, The United States faced a similar dilemma in the Middle East.

The Twentieth Century MEB Amphibious Assault

The Persian Gulf War is the United States' most recent large-scale amphibious assault operation that was planned, rehearsed, and ready for execution. The influence and effect that the embarked amphibious forces had on the events and success of the Gulf War were significant. The

²⁴ Michael Clapp and Ewen Southby-Tailyour, *Amphibious Assault Falklands: The Battle of San Carlos Water* (Annapolis: Naval Institute Press, 1996), 4.

²⁵ Bruce W. Watson and Peter M. Dunn, *Military Lessons of the Falkland Islands War: Views from the United States* (Boulder: Westview Press, 1984), 51-53; Michael Clapp and Ewen Southby-Tailyour, *Amphibious Assault Falklands: The Battle of San Carlos Water*, 132-155; Duncan Anderson, *The Falklands War, 1982*, Essential Histories (Oxford: Osprey Publishing, 2002), 90-92.

challenges, issues, and prerequisites established by the Navy and Marine Corps during the Gulf War were critical in establishing a modern-day baseline Marine expeditionary brigade amphibious assault requirement.

Shortly after midnight on 2 August 1990, armored and mechanized forces of the Republic of Iraq screamed across the border deep into northern Kuwait. By August 6th, the Iraqi military had completely occupied Kuwait with the elements of eleven divisions, comprised of over two hundred thousand troops and two thousand tanks. Iraqi President, Saddam Hussein soon after announced to the world that he had annexed the “19th Providence” of Iraq. The reaction by the global community was immediate. Hours after the initial invasion, the United Nations issued a resolution condemning the Iraqi action as a violation of the United Nations Charter. The United states deployed air and naval forces to the region in the event they were needed. Over fifty countries joined in planning a global coalition of military power, along with dozens of other nations that pledged resources to the multinational effort.²⁶ These forces spent the next eight months revising the war plans against Iraq while they built-up military forces in the region. Amphibious operations occurred throughout the Gulf War as part of the Amphibious Task Force (ATF).²⁷ Most operations were small-unit raids against limited targets. However, there were also plans drawn up to conduct a brigade-sized amphibious assault against the occupied Port of Ash Shuaybah, along the Kuwaiti coast. Preparations for the brigade amphibious assault stated in October 1990, when Central Command published the master plan for Kuwait.²⁸ The original Central Command plan called for Marine forces ashore to attack into the heel of Kuwait and

²⁶ Department of Defense, *Conduct of the Persian Gulf War*, 3-4, 20-23.

²⁷ Marine Forces afloat (4th MEB, 5th MEB, and 13 MEU) were part of the Amphibious Task Force in the Gulf and were attached to the Navy’s Central Command, as opposed to the ground-based forces of I MEF. Thomas D. Dinackus, *Order of Battle*, 18-1, 18-2.

²⁸ Marvin Pokrant, *Desert Storm at Sea: What the Navy Really Did* (Westport: Greenwood Press, 1999), 94.

convince Iraqi forces that they were the main effort. Meanwhile, armored forces would swing into Kuwait and Iraq from the west and trap the Iraqi army between the two forces. Naval Forces Central Command (NAVCENT) completed the amphibious assault operation plan and began extensive training and pre-assault rehearsals. However, before the assault plan was executed General H. Norman Schwarzkopf the Commander of Central Command decided against executing the amphibious assault because of his concerns over the potential cost in life of landing against a prepared enemy.²⁹ General Schwarzkopf stated after the war that, "We had every intention of conducting amphibious operations if they were necessary."³⁰ Due to the uncertainty of success in the initial coalition attack, the Marine Expeditionary Brigade retained the mission to conduct the amphibious assault if things were not going well.³¹

It was vital to the success of the coalition battle plan that the Iraqi's believed that the major coalition attack would come in the form of an amphibious assault against the Kuwaiti coastline. On January 17, 1991, coalition forces commenced offensive air attacks against Iraqi air forces and vital defensive positions throughout Kuwait and Iraq, degrading or destroying critical Iraqi capabilities. The 4th MEB stood ready off the Kuwaiti coast to execute an amphibious assault against Iraqi coastal forces. The Marine Expeditionary Brigade never conducted the landing, but performed its primary role "to threaten an amphibious landing along the coast of Kuwait, to keep Iraq looking east."³²

At 0400 on 24 February, coalition ground forces commenced Operation Desert Storm,

²⁹ Pokrant, *Desert Storm at Sea*, 93.

³⁰ General H. Norman Schwarzkopf, U.S. Army, "CENTCOM News Briefing," (27 February 1991), in *U.S. Marines in The Persian Gulf 1990-1991: Anthology and Annotated Bibliography*, eds. Charles D. Melson, Evelyn A. Englander, and Captain David A. Dawson, U.S.M.C. (Washington, D.C.: U.S. Government Printing Office, 1992), 63; Pokrant, *Desert Storm at Sea*, 94-6.

³¹ Pokrant, *Desert Storm at Sea*, 94.

³² Pokrant, *Desert Storm at Sea*, 94.

the decisive, war-ending action of the Persian Gulf War. Land-based Army, Marine Corps, and coalition forces routed Iraqi forces and drove the invader from Kuwait. The amphibious deception was critical to the success of the coalition plan.³³ The threat of an amphibious landing played a vital role in the naval and ground campaigns of Operation Desert Storm and the ultimate success of the coalition forces in the Persian Gulf War.³⁴

The threat of a Marine expeditionary brigade landing kept six of the forty-two Iraqi divisions, or about eighty thousand soldiers tied down along the Kuwaiti coast.³⁵ The Gulf War provides an excellent model to demonstrate the requirements necessary to plan, equip, and execute a Marine expeditionary brigade amphibious assault using traditional doctrinal operating concepts of the twentieth century. The equipment required to plan, prepare for, and execute a brigade-sized amphibious assault establish a base-line requirement to conduct a modern amphibious assault.

The relevance of sustaining a viable amphibious assault capability during the Persian Gulf conflict is clear. The success of the coalition forces during the Gulf War is uncertain, had the amphibious forces of 4th MEB been threatening the Iraqi forces along the Kuwaiti Coast. The Persian Gulf conflict is just the last of many examples supporting relevance of the amphibious assault as a valid and unique force projection capability. The history of the twentieth century provided numerous cases supporting the continued relevance of keeping a robust trained and ready amphibious force

The Amphibious Assault Requirement

The requirement for maintaining a robust credible equipped, trained, and ready forcible

³³ Pokrant, *Desert Storm at Sea*, 94.

³⁴ Department of Defense, *Conduct of the Persian Gulf War 20-23*; Brown, *U.S. Marines in the Persian Gulf, 1990-1991*, 148.

³⁵ Bruce W. Watson, et al., *Military Lessons of the Gulf War* (Novato, CA: Presidio Press, 1991), 132.

entry capability in modern times is well established. The United States Congress recognized the unique strategic capabilities provided by possessing a amphibious assault capability by codifying in 1947 a formal legal basis for retaining an amphibious assault capability. *The National Security Act of 1947* published as part of *United States Code*, Title, Chapter 507 states: "The Marine Corps shall be organized, trained, and equipped to provide fleet marine forces of combined arms, together with supporting air components, for service with the fleet in the seizure or defense of advanced naval bases and for the conduct of such land operations as may be essential to the prosecution of a naval campaign."³⁶ This federal statute established a standing capability for the Marine Corps to provide a strategic amphibious forcible entry capability. Since 1947, the Marine Corps and Navy have executed their mandated amphibious entry mission numerous times. Since 1990 alone, the Marine Corps executed eighty-five amphibious missions. The amphibious missions spanned the spectrum of conflict in supporting the requirement for the United States to maintain and sustain a robust amphibious capability.³⁷

In accordance with the legal requirement established by Congress, the Department of Defense (DOD) must manage policies regarding the strategic amphibious assault capability. The defense department actively supports maintaining a credible, effective, and resourced amphibious operational capability. DOD Directive 5100.10, *Functions of the Department of Defense and Its Major Components*, mirrors the 10USC507 wording regarding the Marine Corps responsibilities.³⁸ DOD Directive 5100.1 also directs the requirement for the Marine Corps to develop and maintain a credible amphibious forcible entry capability.

³⁶ National Security Act of 1947, Public Law 253, 80th Cong., 1st sess. (July 26, 1947) as Amended, codified at U.S. Code 10 (2009), § 5063.

³⁷ Marine Corps, "Marine Corps Briefing to CRS" (April 25, 2008), quoted in Ronald O'Rourke, Congressional Research Service, *Navy LPD-17 Amphibious Ship Procurement: Background, Issues and Options for Congress*, Rpt. No. RL34476 (Washington, D.C.: Government Printing Service, 2009), 2.

³⁸ Department of Defense, DOD Directive 5100.1, *Functions of the Department of Defense and Its Major Components* (Washington, D.C.: August 1, 2002), 17-18.

The requirement for the Marine Corps to develop, establish, and maintain an amphibious assault capability is clearly established through law and policy. History has shown and law has confirmed that there is an enduring strategic requirement for the United States to maintain a robust amphibious assault capability in confronting adversaries of the twentieth century. Nevertheless, is the Marine expeditionary brigade amphibious assault capability relevant against the dynamic enemies of the twenty-first century?

The Future Relevance of a Amphibious Assault Capability

The worlds' political landscape is constantly changing. The death of the monolithic Warsaw Pact enemy the United States and North American Treaty Organization had focused upon for almost forty years created a global power vacuum. The delicate bipolar balance of global alliances and reliances was gone, ushering in an era of multipolar and unsupported weakened and failing nation states around the world. The United States, now the only world power, is stretched beyond its capability to maintain a unipolar world environment.³⁹ Under President Clinton, the nation attempted to create an economically and politically harmonious planet through increased globalization. Globalization continues to affect the interconnectivity between nation's economies, but it also creates greater uncertainty around the globe.⁴⁰

There is no definitive method or system to predict the nature and intensity of conflict over the next twenty-five years. The *National Defense Strategy*, along with the Navy, Marine Corps, Coast Guard, and Army, all predict an increasing tendency towards violent extremist actors who are willing to use violence to destabilize legitimate governments to achieve their

³⁹ Marine Corps, *United States Marine Corps Warfighting Concepts for the 21st Century* (Quantico: Marine Corps Combat Development Command, 1996), III-3.

⁴⁰ Department of Defense, *National Defense Strategy: June 2008* (Washington D.C.: Government Printing Office, 2008), 4-5.

goals.⁴¹ In 2007, the current Chief of Staff of the Army, General George Casey, best explained the uncertain nature of the future threat environment the United States can expect to confront, “But as I look to the future what I see is a future of what I call persistent conflict. I define that as a period of protracted confrontation among states, non-states and individual actors, who are increasingly willing to use violence to achieve their political and ideological ends. So, you roll all those different things together with the fact that we’re already at war and we have a bumpy future here.”⁴² Whether the nation faces numerous regional conflicts of an unconventional or hybrid nature, or a major theater conventional-type war, the future global environment requires a strong versatile military capability in order to protect the vital economic and strategic interests of the United States across an uncertain world.⁴³

In an uncertain future world, two-thirds of which is covered by water, it is reasonable to estimate that an increase in military operations along the world’s coastlines or “littorals” is probable. The United States Navy, in its *Naval Operating Concept 2006* stated that, “The significance of securing the maritime domain cannot be overstated. Salt water covers more than two-thirds of the earth’s surface and more than ninety percent of the world’s trade travels by water, largely via a network of thirty mega-ports. It is estimated that more than seventy-five percent of the world’s population and eighty percent of the capital cities are located in the

⁴¹ Department of Defense, *National Defense Strategy: June 2008*, 2-5; Department of the Navy, *A Cooperative Strategy for 21st Century Seapower* (Washington, D.C.: Government Printing Office, 2007), 3-4; Department of the Navy, *Naval Operating Concept 2006*, (Washington D.C.: Government Printing Office, 2006), 1, 5, 8-9.

⁴² General George W. Casey Jr., Chief of Staff, United States Army, “Persistent Conflict: The New Strategic Environment” (address given to the Los Angeles World Affairs Council, Los Angeles, CA, September 27, 2007).

⁴³ Gray discusses the social, political and cultural factors affecting the future of conflict through the twenty-first century. The author makes several arguments for the current over valuing of globalization as an effect in the future. The author goes further to relate several historical examples back to the Melians on the future contest of warfare. The decline of major interstate war is a point strongly argued by Gray throughout the book. The effects of climate change has far-reaching impacts into the nature of warfare into the twenty-first century, which is a growing concern among most industrialized nations throughout the world. Colin S. Gray, *Another Bloody Century* (London: Orion Books Ltd, 2005), 55-97.

littorals.”⁴⁴

The United States relies on freedom across the global commons to meet the country's national security needs. The littorals are a key avenue into the global commons, and the United States Navy is tasked with ensuring freedom in the global commons.⁴⁵ Almost fifteen years ago, the Marine Corps projected, in its *Warfighting Concepts for the 21st Century*, that due to the future population's proximity to global trade routes, “littorals are also the place where most of the world's important conflicts are likely to occur.”⁴⁶ The document's focus on the littoral drives the focus of warfighting skill development. The thirty-fourth Commandant of the Marine Corps, General James T. Conway stated that, “As we prepare for an unpredictable future, we must continue to assess the potential future security environments and the challenges of tomorrow's battlefields. Our solid belief is that a forward deployed expeditionary force, consistently engaged and postured for rapid response, is as critical for national security in the future as it is today. The Marine Corps, with its inherent advantages as an expeditionary force, can be rapidly employed in key areas of the globe despite challenges to United States access.”⁴⁷ General James T. Conway's assertion validates the relevance of the Marine Corps' amphibious assault capability against the littorally based regional adversary in the twenty-first century.⁴⁸ The requirement for the United States to sustain an American amphibious assault capability to confront the evolving twenty-first century threat remains relevant. However, is the current amphibious assault doctrine effective in confronting the twenty-first century threat?

Twentieth Century Doctrine in the Twenty-First Century

⁴⁴ Department of the Navy, *Naval Operating Concept*, 2006, 9.

⁴⁵ Department of the Navy, *A Cooperative Strategy for 21st Century Seapower*, 4-7.

⁴⁶ Marine Corps, *Warfighting Concepts for the 21st Century*, I-4.

⁴⁷ Senate Committee on Armed Services, *The Posture of the United States Marine Corps*, Statement of General James T. Conway, Commandant of the Marine Corps, 111th Cong., 1st sess., 4 June 2009.

⁴⁸ Marine Corps, *U.S. Marine Corps Concepts and Programs 2009*, 35-6.

The traditional doctrine for an amphibious assault has remained relatively unchanged for fifty years. The joint doctrine for *Landing Force Operations* describes the tactics for conducting a traditional twentieth century-style amphibious assault landings against the traditional twentieth century enemy.⁴⁹ Amphibious doctrine from the Second World War through the early 1990s developed into a highly organized methodology. Amphibious ships gather from between five and nine miles off the landing beach until it is almost time to begin the assault. At a designated time, according to an assault plan, the amphibious assault ships begin to move to a distance of only two and one half to three miles off the landing beach and launch the amphibious assault vehicles. The ships then return to their holding area known as the “transport area.” Once in the water, the amphibious vehicles rendezvous with the remainder of their assault wave and begin to move toward the Line of Departure, which was about two and one-quarter miles off the beach. When signaled, the wave gets on line and surges toward the beach at a maximum speed of about eight knots. Once ashore, the assault vehicles rush up the beach to either discharge their Marines and then support their maneuver inland, or keep moving inland to a designated objective before discharging the Marines. The amphibious assault vehicles usually remain with the infantry squad they brought ashore to provide fire support and rapid movement in the battle area.⁵⁰

Moving the amphibious assault force ashore using traditional doctrine was controlled by several factors in addition to the capabilities of the amphibious assault vehicle. One factor was the role of assault aircraft, which under traditional doctrinal were versatile in the types of tasks the helicopters could perform, but the size of the force was limited and there were usually more missions for them than helicopters available. If the Marine expeditionary brigade mustered all of its airframes, it could lift close to a battalion, but there would be no helicopter lift available for

⁴⁹ Department of Defense, *Joint Doctrine for Landing Force Operations*, JP 3-02.1 (Washington, D.C.: Government Printing Office, 1989), A-1.

⁵⁰ Department of Defense, *Joint Doctrine for Landing Force Operations*, A-09 – A-10.

any other tasking during the assault phase. Another factor was that a seaborne assault over a defended beach required heavy and sustained pre-assault preparations of the landing beaches. As part of the pre assault operations, a dedicated minesweeping effort would be required to clear lanes of shallow-water mines to the landing beaches. Pre assault minesweeping efforts could take hours, day and possibly even weeks to complete.

Finally, conducting operations so close to the landing beach would expose the vessels to enemy fire and alert the enemy to the landing site giving them plenty of time to reinforce beach defenses. The developing weapon technologies of the late 1980s drove the Navy to conclude that the advanced mines, anti-ship cruise missiles, and submarines of the littoral areas were too dangerous for large amphibious and support ships. As the littoral threat evolved in the later part of the twentieth century, the traditional amphibious assault doctrine was no longer feasible for the Navy. To evolve amphibious assault doctrine to confront the changing threat, the Navy and Marine Corps developed a concept called From the Sea, which proposed protecting the amphibious ready group from missiles and mines by moving it out of the littoral and over-the-horizon from the assault objectives. The over-the-horizon concept was one of several initiatives developed as part of the Expeditionary Maneuver Warfare concept.⁵¹

Emerging Doctrine - Expeditionary Maneuver Warfare Concept

The Marine Corps' current capstone doctrine is Expeditionary Maneuver Warfare.⁵² Expeditionary Maneuver Warfare incorporates the key Navy and Marine Corps initiatives of Operational Maneuver from the Sea (OMFTS), Ship-to-Objective Maneuver (STOM), Over-The-Horizon (OTH) and Seabasing. Expeditionary Maneuver Warfare preserves the Marine Corps' maneuver warfare philosophy, and amphibious operational core competency, by exploiting

⁵¹ Ronald O'Rourke, *Naval Transformation: Background and Issues for Congress*, RL20851, Congressional Research Service (Washington, D.C.: Government Printing Office, 2001), 2.

⁵² Marine Corps, MCDP 1-0, 2-14 - 2-17.

evolving equipment technologies and capabilities to increase tempo and massing, while avoiding modern threat weapon strengths.⁵³

The Navy, in its transformational doctrinal concept, *Seapower 21: A Naval Vision* touts Expeditionary Maneuver Warfare as the methodology, “by which the Marine Corps will organize, deploy and employ forces today and in the future.”⁵⁴ The concept entails the amphibious task force staging about twenty-five miles offshore to avoid enemy surface to ship missiles and littoral mines. The Navy then provides fire support with standoff weapon systems and state of the art long-range cannons. The Marines launch from the amphibious ships to the beach by high-speed amphibious tanks and above beach defenses and directly to inland objectives by specialized aircraft, overwhelming the enemy with the speed of execution and at a greatly reduced risk to surface ships.⁵⁵

In order to realize Expeditionary Maneuver Warfare, the Marine Corps must develop new specialized equipment to meet the doctrine’s requirements. Since 1967, the Marine Corps has used the amphibious assault vehicle and Boeing Vertol, CH-46, Sea Knight, medium assault helicopter as the primary amphibious assault platforms. These platforms normally operate within several miles of the shoreline, which is within the range of most modern weapon systems. The Marine Corps has been developing the MV-22 Osprey and the expeditionary fighting vehicle

⁵³ The *Marine Corps Operations* doctrinal publication MCDP 1-0 defines the subordinate operating concepts within Expeditionary Maneuver Warfare as: 1) Operational Maneuver from the Sea (OMFTS) applies across the range of military operations and exploits the sea as maneuver space while applying combat power ashore to achieve the operational objectives. The force uses the sea as maneuver space to generate overwhelming tempo and momentum against enemy critical vulnerabilities; 2) Ship-to-Objective-Maneuver (STOM) is the tactical implementation of OMFTS by the MAGTF. It is the use of maneuver warfare to amphibious operations at the tactical level of war. STOM treats the sea as maneuver space, using the sea as both a protective barrier and an unrestricted avenue of approach. Seabasing is defined in Joint Pub 3-02 *Amphibious Operations* as, the deployment, assembly, command, projection, reconstitution, and reemployment of joint combat power from the sea without reliance on land bases.

⁵⁴ Department of the Navy, *Seapower 21: A Naval Vision* (Washington, D.C.: Government Printing Office, 2002), 4.

⁵⁵ Marine Corps, *MCDP 1-0*, 2-14 to 2-18.

(EFV) to replace the aging AAV7A1, amphibious assault vehicle and Sea Knight medium helicopter.⁵⁶ Both the Osprey and expeditionary fighting vehicle perform similar functions as their predecessors, but with greatly enhanced speed and endurance. These enhanced capabilities are required to overcome the extended assault distances, and platform survivability against newer weapons systems. The Marine Corps is attempting to modernize its amphibious assault concepts and capabilities, but what about its partner the Navy?

The Navy's amphibious ship capabilities and design have remained relatively the same for the last forty years. Recently, the Navy focused on developing Seabasing, which supports amphibious assaults from beyond the littoral threats of missiles and mines. In order to realize Expeditionary Maneuver Warfare and Seabasing, the Navy must also develop new amphibious ships to support the emerging equipment capable of delivering the assault forces ashore from twenty-five miles away. Can the Navy provide the ships and the Marine Corps the equipment necessary to carry out a Marine expeditionary brigade amphibious assault? Can the Marine Corps conduct the amphibious assault using the concepts of Expeditionary Maneuver Warfare?

Equipment Governs Capability

Amphibious Shipping: Amphibious Assault's Achilles' Heel

Twentieth Century

Operation Desert Storm demonstrated that amphibious shipping was the Achilles' heel of the traditional-style Marine expeditionary brigade amphibious assault. Without sufficient and adequate numbers and types of ships, an assault force can meet with disaster. When Iraq invaded Kuwait, 4th MEB was ordered to reconfigure and prepare for combat in the Persian Gulf, but was assigned insufficient amphibious assault lift upon which to embark. Lieutenant Colonel Ronald

⁵⁶ Both the AAV amphibious tractor and the CH-46 helicopter have undergone numerous modifications and service life extension programs in order to keep them in service for some 40 years.

Brown, in his history of the Gulf War stated that, “In 1990 the Gator Navy consisted of more than sixty amphibious ships organized into three amphibious groups and eleven amphibious squadrons. Theoretically, there were enough amphibious to lift an entire Marine expeditionary force.”⁵⁷ United States Navy may have had enough ships to lift a Marine Expeditionary Force in theory, but in practice, the amphibious ships were spread across the globe and it was difficult to bring large numbers of ships together quickly.⁵⁸

The 4th Marine expeditionary force, according to their force list, required approximately twenty-four large amphibious assault ships, which are designed to unload forces under fire, to lift the combat configured assault force of eighty-five hundred Marines and their equipment to the Persian Gulf. This Marine Expeditionary Brigade was initially assigned only nine amphibious assault ships to move the entire formation to combat in the Persian Gulf. After strained discussions with the Marines, the Navy added four additional ships for a total of thirteen amphibious ships, well short of the required twenty-four. The Navy put much of the blame for 4th MEB’s amphibious assault shipping shortage on the haste with which the specialized combatant ships were requested. The Marines commandeered five additional noncombatant cargo ships, which are designed to unload cargo only at secure, modern ports, from the Military Sealift Command (MSC) to move 4th Marine expeditionary brigades overflow troops and equipment to the gulf. Upon arriving in the Gulf, the 4th MEB were fortunate to enter a U.S. dominated Persian Gulf with available, modern ports, and the time to reconfigure the force to conduct an amphibious assault.⁵⁹ Though, the ship shortage plagued Marines throughout the Gulf War, it did not prevent

⁵⁷ Brown, *U.S. Marines in the Persian Gulf, 1990-1991*, 9.

⁵⁸ Brown, *U.S. Marines in the Persian Gulf, 1990-1991*, 9.

⁵⁹ Brown, *U.S. Marines in the Persian Gulf, 1990-1991*, 10-11,22-23; Amphibious Group 2 assault ships sent to the Persian Gulf included: 1 Tarawa- and 2 Iwo Jima class assault helicopter ships, 3 Austin/Raleigh-class dock transports; 3 Whidbey Island /Anchorage-class dock landing ships and 4 Newport-class tank landing ships. Dinackus, *Order of Battle*, 18-2.

the Marine expeditionary brigade from adapting its procedures and reconfiguring its force and equipment distribution among the amphibious assault ships in preparation for the pending amphibious assault. The ship shortage would have caused serious problems for the Marine Expeditionary Brigade if the Iraqis had contested the waters of the Persian Gulf, if there had been no modern ports, or if the force did not have the time to reload the amphibious assault ships in a combat configuration.

Twenty-First Century

The twenty-first century amphibious assault fleet is nearly half the size of the Gulf War fleet. The ability of today's Navy to provide sufficient amphibious assault ships to support a Marine expeditionary brigade-sized mission is unknown. The United States Navy controls the quantity, location, and availability of the amphibious assault ships that the Marine expeditionary forces are dependent upon to conducting any type of amphibious operation. The Navy procures, operates, maintains, and sustains the amphibious fleet. The Marine Corps provides input into the amphibious assault ships capabilities, but the ultimate decision on amphibious shipping lies with the Navy. The amphibious assault fleet exists under constant tension within the Navy. On one hand, the Navy wants to provide the ships necessary to deliver the full range of Marine Air Ground Task Force units safely to their objective. On the other hand, the Navy needs to balance the size of the amphibious force within the total number of ships the service can afford.⁶⁰ The fiscal policy creates a friction between the amphibious lift requirement and limitations of the size

⁶⁰ The USMC base procurement request for 2011 is \$1.34B. The Department of the Navy (DON) 2011 base appropriation is for \$46.2B. The Department of Defense 2011 budget request for appropriations is \$137.5B. Department of Defense, *Fiscal year 2011 Budget Request: Procurement Programs (P-1)*, Exhibit P-1 to the FY2011 President's Budget (Washington, D.C.: Government Printing Office, 2010), IIA, N-1, N-2; House Committee on Armed Services, *The Long-Term Outlook for the U.S. Navy's Fleet*, Eric J Labs, Congressional Budget Office, 111th Cong., 2nd sess., 2010, 2-9; O'Rourke, Ronald, *Navy-Marine Corps Amphibious and Maritime Prepositioning Ship Programs Background and Oversight Issues for Congress*. Congressional Research Service, RL32513. (Washington, D.C.: Government Printing Service, 2004), 1-6.

of the fleet the Navy can afford. The Amphibious assault fleet is historically about 16 percent. As the total size of the Navy's active fleet fluctuates so does the number of amphibious ships, regardless of the amphibious assault requirement. There is no statute or regulation that requires the Navy to provide a certain number of amphibious assault ships to support Marine amphibious forces. But, overall fleet size dictates the number of amphibious ships and therefore, constrains the size of the Marine force that the Navy can support in the conduct of an amphibious assault, maybe it is time to formalize a set amphibious assault ship requirement between the Navy and Marine Corps.

The Navy has seen its fleet shrink from five hundred and ninety four ships in the late 1980s down to two hundred and eighty-seven ships in 2009. The effect on the amphibious warfare fleet of assault ships is that there are currently ten "big-deck" and twenty-three "small-deck" "amphibious ships, in the inventory for a total of thirty- three ships.⁶¹ The thirty- three ships are distributed among the numbered surface fleets, across the globe. In addition to amphibious ship distribution among various fleets, approximately 15 percent or approximately four ships are out of service undergoing scheduled maintenance. Of the remaining twenty-nine available ships, two or three expeditionary strike groups are normally forward deployed, each carrying a twenty-two hundred Marine Expeditionary Unit, its equipment and fifteen days of supplies. Each expeditionary strike group contains three ships and executes missions for their respective Theater Commanders throughout the six-month deployment. The remaining twenty are either preparing to embark Marines, conducting separate Navy operations, or in maintenance.

The Global Fleet Station mission is a new naval concept that is employing a growing number of individual amphibious ships operating on Navy specific missions. Global Fleet

⁶¹ U.S. Navy, "The Amphibs" Navy.mil: the Official Website of the United States Navy, <http://www.navy.mil/navydata/ships/amphibs/amphib.asp> (accessed 03 February, 2010).

Stations provide theater security cooperation and global war on terrorism support to multinational partners or non-government agencies, to areas in the Caribbean, Gulf of Guinea and off the western coast of Africa.⁶² The Global Fleet Station is one example of a Navy mission that competes with the number of amphibious ships available for Marine expeditionary brigade and unit deployments.

Navy Shipbuilding Plans' Effect on Marine Corps Capabilities

Can the Navy maintain the ability to lift a Marine expeditionary brigade to the amphibious assault area as the availability of amphibious ships shrinks? The answer lies in the number and type of amphibious ships that the Navy can muster to lift an expeditionary brigade, vehicles, and aircraft to the landing site. The government discusses strategic amphibious forcible entry capability in terms of Marine expeditionary brigade assault echelons (AE). The standard Marine expeditionary brigade is comprised of 14,484 Marines and their equipment, divided into two echelons. The Marine expeditionary brigade's assault echelon is the element that conducts the initial landing and contains 10,055 Marines and sailors.⁶³ A complete Marine expeditionary brigade assault echelon includes the Marines and their assault wave equipment. The assault follow-on echelon (AFOE) is the second Marine expeditionary brigade element, which lands after the beach area is secured bringing ashore the remaining support elements.⁶⁴

The Marine Corps has stated that a Marine expeditionary brigade requires seventeen amphibious ships to move the assault echelon and its equipment to the objective site. The reduced availability of amphibious ships to for operations creates risk for the amphibious force. In 2008,

⁶² O'Rourke, *Navy LPD-17 Amphibious Ship Procurement*, 3-4, 7.

⁶³ O'Rourke, *Navy LPD-17 Amphibious Ship Procurement*, 7, table 2.

⁶⁴ The 2010 QDR defers building the MPS (F), creating a dilemma for the amphibious landing force. Department of Defense, *Quadrennial Defense Review Report* (Washington, D.C.: Government Printing Office, 2010), 40; Senate Committee on Armed Services, Subcommittee on Seapower, *Concerning Shipbuilding and force Structure*, Testimony of Lieutenant General James F. Amos, Deputy Commandant of the Marine Corps, 110th Cong., 2nd sess., 2008, 6.

the Deputy Commandant of the Marine Corps, Lieutenant General James F. Amos explained the amphibious ship predicament in to Congress by stating, "Each modern MEB AE requires seventeen amphibious warfare ships resulting in an overall ship requirement for thirty-four amphibious warfare ships. The Marine Corps must maintain the capability to conduct two-seabased MEB assaults simultaneously." ⁶⁵ The amphibious assault requirement has not changed since 2008. In fact, in 2009, the Marine Corps in its *United State Marine Corps Concepts and Programs 2009* reaffirmed the seventeen ships requirement for each Marine expeditionary brigade assault echelon, totaling thirty-four operationally available amphibious warfare ships. ⁶⁶

Though the Marine Corps firmly established the amphibious assault lift requirement, fiscal and operational constraints have caused the Navy to make further cuts to amphibious warfare shipping. In 2009, the Navy and Marine Corps agreed to assume a degree of operational risk by allocating only fifteen ships for each Marine expeditionary brigade assault echelon. Lieutenant General Amos clarified the effect of further reducing the amphibious ship on the Marine expeditionary brigade, "Given the current fiscal constraints, the Navy and Marine Corps have agreed to assume a degree of operational risk by limiting the assault echelon of each MEB by using only 15 ships per MEB." ⁶⁷ In 2010, The Chief of Naval Operations, Admiral Gary Roughead (CNO), reaffirmed the Navy's commitment to maintaining only a thirty-three ship amphibious fleet. ⁶⁸ The Navy's long-term reduction in amphibious ships, with three to four constantly in maintenance, gives the Marine Corps thirty operational ships, four operational ships

⁶⁵ Senate Committee on Armed Services, Subcommittee on Seapower, *Concerning Shipbuilding and Force Structure*, 6.

⁶⁶ Marine Corps, *U.S. Marine Corps Concepts and Programs 2009*, 156.

⁶⁷ Senate Committee on Armed Services, *Concerning Shipbuilding and Force Structure 2009*, 6.

⁶⁸ Philip Ewing, "USMC Loses Latest Round of Amphib Battle," *Defense News*, February 15, 2010, 18.

short of the Marine Corps stated thirty-four ship lift requirement.⁶⁹

The effect the size of the amphibious warfare ship requirement has on the expeditionary brigade is definitive. Table 2 shows that as the ship allocation decreases from seventeen to fifteen, the assault echelon loses 20 percent of its vehicles and 12 percent of its critical supplies to insufficient storage space. In order to avoid the operational risk created by reducing the amphibious ship commitment to the Marine expeditionary brigade, the Navy needs to maintain thirty-four operational amphibious warfare ships. Since 15 percent of the amphibious fleet, or approximately four ships, are in maintenance at any given time, the Navy requires thirty-eight ships to maintain thirty-four operational ships. Of the thirty-eight amphibious warfare ships, at least twelve of the thirty-eight amphibious assault ships must be “big-decks,” to hold the MAGTFs air combat element.⁷⁰ The importance of the large-deck ships cannot be underestimated. The Osprey tiltrotor is in the process of replacing the Sea Knight helicopter throughout the Marine Corps. The Osprey is larger and requires more space to operate and store than the Sea Knight, so a slight increase in amphibious shipping is needed to support the amphibious assault force.

Lift Element	Operational Ships per MEB		Percent of Shortfall in the Lift Element with 15 ships per MEB
	17 ships	15 ships	
Vehicle storage space (square feet)	312,601	281,694	20.1%
Cargo storage (cubic feet)	553,009	486,638	12.0%

Table 2: Marine Expeditionary Brigade Assault Echelon Lift Elements⁷¹

⁶⁹ Ronald O’Rourke, *Navy Force Structure and Shipbuilding Plans*, 10-11.

⁷⁰ Marine Corps, *U.S. Marine Corps Concepts and Programs 2009*, 156.

⁷¹ O’Rourke, *Navy LPD-17 Amphibious Ship Procurement*, 3-4, 7, table 2.

The Navy has no plans to start new amphibious ship construction until 2016, meaning that no new ships enter the fleet until at least 2025.⁷² To make matters worse the Secretary of Defense, Robert Gates, has stated, “We will delay amphibious-ship and sea-basing programs, such as the 11th landing platform dock ship and the mobile landing platform ship, to FY [fiscal year] '11 in order to assess costs and analyze the amount of these capabilities the nation needs.”⁷³ The Navy’s support in championing the Marine Corps amphibious ships requirement remains problematic. The proposed budget supports thirty-two ships, one short of maintaining an operationally risky thirty-three ship fleet required by the Marine Corps to conduct its strategic amphibious assault mission. Mr. O’Rourke, a naval affairs specialist, stated that, “Although the FY2009 30-year shipbuilding plan would support a force of 32 or 33 amphibious ships, as opposed to 31 called for in the 313-ship plan, the 32- or 33-ship force would include nine LPD-17 class ships, as opposed to the 10 called for in the 313-ship plan. The Marine Corps states that fully meeting the requirement for an amphibious force capable of lifting the assault echelons of two Marine expeditionary brigade assault echelons requires a 33-ship amphibious force that includes 11 LPD-17s.”⁷⁴

Full Navy support is necessary for the Marine Corps to maintain the minimal fifteen to seventeen ships per Marine expeditionary brigade lift needed to carry the assault echelon and its equipment to the combat area. The Marine Corps requires seventeen amphibious ships to lift the expeditionary force's assault echelon. The Marine expeditionary brigade can conduct an amphibious assault with fifteen ships, but only by accepting operational risk to the success of the assault. By sustaining an amphibious fleet of between thirty-two and thirty-four total ships, as the

⁷² Ronald O’Rourke, *Navy Force Structure and Shipbuilding Plans 2009*, 7-8.

⁷³ Robert Gates, U.S. Secretary of Defense, “DoD News Briefing With Secretary Gates From The Pentagon,” U.S. Department of Defense News Transcript Presenter: April 06, 2009, <http://www.defenselink.mil/transcripts/transcript.aspx?transcriptid=4396> (accessed 25 November 2009).

⁷⁴ Ronald O’Rourke, *Navy Force Structure and Shipbuilding Plans 2009*, 12, table 6, note a.

Navy's 2009, *Thirty-Year Shipbuilding Plan* proposes, the Navy expects the Marine Corps to accept a continued level of operational risk through 2038.⁷⁵

Though the Navy's current amphibious fleet projection for the next twenty-eight years limits the Marine expeditionary brigade from employing all of the assault echelon's equipment and cargo during an amphibious assault, it is not a critical limiting factor. There are, however, two significant outcomes from the reduced size of the amphibious fleet on the Marine Corps ability to conduct a Marine expeditionary brigade amphibious assault. First, under the current Navy shipbuilding plan the Marine Corps will never see the thirty-four operational ship amphibious fleet it needs to deliver the assault echelons of two MEBs without operational risk. Second, and most important, the Navy expects the Marine Corps to accomplish its strategic forcible entry mission burdened with an equipment-based operational risk.

Amphibious Surface Assault Concepts & Capabilities

The capacity of the Navy to lift the Marines and their equipment is the most significant challenge facing the Navy/Marine Corps Team's expeditionary forcible entry capability. The Marine Corps family of expeditionary assault vehicles limits the flexibility and development of amphibious assault doctrine and capability. The expeditionary assault vehicle of the twentieth century and the supporting traditional amphibious assault doctrine were effective in enabling MEB amphibious assault capability against Iraqi forces in the Persian Gulf War. As the twenty-first century unfolds, can the assault vehicle meet the requirements of expeditionary maneuver warfare in the execution of the Marine expeditionary brigade amphibious assault?

Twentieth Century

Since 1972, the AAV7A1 amphibious assault vehicle, known as the "AAV," has been the backbone of the Marine Corps in delivering the majority of the assault force to the landing beach.

⁷⁵ Ronald O'Rourke, *Navy Force Structure and Shipbuilding Plans, 2009*, 10-11.

The amphibious assault vehicle is a fully tracked amphibian vehicle used to land the Marine assault waves and their equipment from ship to shore over the beach and inland. These craft provide a hardened, weaponized “over-the-beach” platform to the Marine assault waves. During the traditional twentieth century amphibious assault, amphibious warfare ships launched the amphibious assault vehicle from a maximum assault range of approximately three miles off the beach.⁷⁶

During Desert Storm, the Marines employed the amphibious assault vehicle. Of the 1,153 amphibious assault vehicles in the Marine Corps in 1991, four hundred and seventy-three amphibious assault vehicles deployed to the Persian Gulf for the war. Many of the amphibious assault vehicles were used in land-based roles as armored troop carriers. Forty-eight amphibious assault vehicles were assigned to 4th Marine Expeditionary Brigade to conduct the planned amphibious assault, enough to move almost an infantry battalion ashore in a single wave. The amphibious assault vehicle proved their relevance during the Gulf War by successfully moving the assault wave ashore during pre-assault rehearsals on January 23, 1991.⁷⁷ The amphibious assault vehicles successful landings during rehearsals were in large part due to the maritime and air dominance in the operating area, which permitted the amphibious ships to freely and safely maneuver and close within two miles of the landing beaches with no fear of serious enemy attack.⁷⁸

⁷⁶ Marine Corps, *Employment of Amphibious Assault Vehicles (AAV)*, MCWP 3-13, (Washington, D.C.: Government Printing Office, 2005), 1-1, A-1.

⁷⁷ Brown explained that there were other support platforms ready to support the Marines once ashore. The Navy’s unarmored landing craft followed the armored assault craft of the assault waves. The landing craft were supplemented with the new high-speed hovercraft, known as landing craft, air-cushioned, or LCAC. There were seventeen of these high speed heavy lifters in the Gulf at the time of the ground war and would have most likely been assigned to support the amphibious landing. Brown, *U.S. Marines in the Persian Gulf, 1990-1991*, 10, 20; Department of Defense, *Conduct of the Gulf War*, 736.

⁷⁸ Department of Defense, *Conduct of the Gulf War*, 193-99.

Twenty-First Century

Early in the twenty-first century, the Marine Corps shifted amphibious doctrine to Expeditionary Maneuver Warfare. Expeditionary Maneuver Warfare required an expeditionary assault vehicle to carry Marines from ship to shore as it did in the Gulf War, but now from twenty-five miles instead of three miles. The expeditionary assault vehicles would now have to cover the increased distance to the beach caused by the developing anti-access threats that forced the amphibious fleet into the open ocean. However, as of 2010, the Marine Corps still uses the AAV7A1 as its primary amphibious assault vehicle to bring the Marines across the beach. This platform firmly ties the tactics of the amphibious assault to traditional amphibious assault doctrine used during the Gulf War. The amphibious assault vehicle has remained relatively identical in function and capability over the last forty years of its existence. The range limitation on the amphibious assault vehicle requires that the amphibious fleet move within three miles of the beach to discharge the assault waves. Moving in close to shore exposes the amphibious warfare ships the anti-ship missiles and shallow-water mines that the Navy's Seabasing doctrine was created to avoid.

Current Navy and Marine Corps doctrinal warfare operating concepts require the fleet to loiter twenty-five miles off shore in the open ocean in order to provide safety to the amphibious fleet. Under Expeditionary Maneuver Warfare capstone doctrine, the Navy's Seabasing initiative relies on the expeditionary fighting vehicle (EFV) to move the assault forces over the horizon from the ships to the shore. The Marine Corps *Concepts and Programs 2009* labels the expeditionary fighting vehicle as the "primary means of tactical mobility" for Marines during amphibious operations. The expeditionary fighting vehicle is an impressive craft that directly supports the Marine Corps' Expeditionary Maneuver Warfare. The vehicle is designed to approach the beach at speeds of twenty to twenty-five knots fully loaded from twenty-five nautical miles out at sea. The expeditionary fighting vehicle climbs ashore on its fully tracked, armored chassis and can engage the enemy with a thirty-millimeter automatic gun, a substantial

upgrade from the amphibious assault vehicle's fifty-caliber machine gun. The expeditionary fighting vehicle was specifically built to operate "over the horizon" from the Navy's Seabases.⁷⁹

There are currently no expeditionary fighting vehicles in production, which means a new amphibious assault vehicle is years from joining the operational forces. The expeditionary fighting vehicle concept began in 1988 and the vehicle was originally supposed to enter service in 2003. Unfortunately, the program has had its share of problems. The fighting vehicle failed a critical operational assessment during development in 2006. The expeditionary fighting vehicle is scheduled to start production in 2012. The program is now nine years behind schedule and has doubled in price. As a Congressional report on the expeditionary fighting vehicle stated in 2008, "The result is a project that is billions of dollars over budget and many years late." The price increase has forced the Marine Corps to cut its procurement in half from 1,025 to 573 vehicles.⁸⁰ The expeditionary fighting vehicle procurement reductions create a problem. The Marine Corps requires 1,025 expeditionary fighting vehicles to adequately replace the existing amphibious assault vehicle force.

The Marine Corps cannot currently execute Expeditionary Maneuver Warfare doctrine without the expeditionary fighting vehicle fully fielded in the Fleet Marine Forces. The high speed, amphibious surface assault, one of the tenets of Expeditionary Maneuver Warfare, is not a reality today and will not be within the next five years. Until the Marine Corps can fully integrate the expeditionary fighting vehicle within the operational forces of the Fleet Marine Forces, the Marine expeditionary brigade will continue to use the traditional amphibious doctrine that works

⁷⁹ U.S. Marine Corps, EFV Program Manager, *Advanced Amphibious Assault, Expeditionary Fighting Vehicle*, <http://www.efv.usmc.mil/> (accessed 21 December 2009); Marine Corps, *U.S. Marine Corps Concepts and Programs 2009*, 102.

⁸⁰ House Committee on Oversight and Government Reform, Majority Staff, *The Expeditionary Fighting Vehicle: Over Budget, Behind Schedule, Unreliable* (Washington, D.C.: Government Printing Office, 2008), 11; Andrew Feickert, *The Marines' Expeditionary Fighting Vehicle (EFV): Background and Issues for Congress*, Congressional Research Service, RS22947 (Washington, D.C.: Government Printing Office, 2009), 1-9.

for the AAV7A1 amphibious assault vehicle. A dilemma has developed between the amphibious fleet and the Marine expeditionary brigade's assault force. The Navy, under Seabasing, will not come within twenty-five miles of the beach to discharge the assault force's amphibious assault vehicles because of the risk of attack from anti-access weapons. The amphibious assault vehicle cannot realistically travel more than three miles from the ship to the beach. Until the expeditionary fighting vehicle is operational, the Marine Corps and Navy need to compromise in the equipment and doctrine used to conduct amphibious assaults. The assault helicopters of the Marine expeditionary brigade may be one platform that can help to bridge the impasse between distance and threat.

Amphibious Air Assault Concepts & Capabilities

The Marine air ground task force has an integrated and highly effective Air Combat Element. The element is a vital part of the amphibious assault. The assault support aircraft of the air combat element perform a range of critical assault support and logistics resupply missions during all phases of an amphibious assault. Though the Marine expeditionary brigade has a robust and versatile aviation capability, it was not designed to assault an entire brigade ashore by air.⁸¹ This section of the study will examine two aspects the assault aviation of the Marine expeditionary brigade. The first section will examine the role of the Boeing Vertol, CH-46E Sea Knight helicopter in the Gulf War as the aircrafts standard under traditional assault doctrine. The second section attempt to answer the question, can the Sea Knight and its replacement the Bell Boeing MV-22, tiltrotor Vertical/Short Take Off and Landing (VSTOL) aircraft, or Osprey execute its mission during an amphibious assault within the parameters of Expeditionary Maneuver Warfare?

⁸¹ There are enough CH-46Es in the Marine Expeditionary Brigade to bring a battalion ashore in a single lift, but would require all of its assault support aircraft. The decision to move such a large force, as an infantry battalion is unusual at best. To attempt to move an entire regiment of Marines ashore with its combat equipment is unrealistic.

The Sea Knight is the workhouse of the Marine Corps vertical envelopment and amphibious assault capability. The helicopter entered service in 1964 and first saw service in Vietnam. According to Lieutenant General George J. Trautman, Marine Corps Deputy Commandant for Aviation, the Sea Knight has an operating speed of seventy knots for over two hours and an operating radius of about eighty-six statute miles.⁸² The helicopter carries twelve to thirteen Marines, is armed with two, fifty-caliber machine guns, and usually operates with armed escort.⁸³ The Sea Knight remains a vital aircraft to the Marine Corps assault capability, but with almost half a century operational life, the aircraft need replacing.

Twentieth Century

Operation Desert Storm demonstrates classic preparation for the use of the traditional twentieth century amphibious assault doctrine. Marine Corps assault helicopters were the critical element in assisting in a rapid buildup of combat power ashore. There were not enough amphibious assault vehicles in the 4th Marine Expeditionary Brigade to bring all of the infantry battalions ashore during the amphibious landing. To expedite the buildup of combat forces and equipment over the beach, the landing force relied upon the Marine Expeditionary Brigade's assault support helicopters.

The 4th Marine Expeditionary Brigade owned twenty-four Sea Knight helicopters. Each Sea Knight with armor weapons, and ammunition could carry 4,154 pounds internally, about a thirteen of combat-loaded Marines. Each squadron could lift approximately a company of combat

⁸² House Committee on Oversight and Government Reform, *Marine Corps MV-22B Osprey Program*, Testimony of Lieutenant General George J. Trautman, Deputy Commandant of the Marine Corps for Aviation, 111th Cong., 1st sess., May 23, 2009.

⁸³ Marine Corps, *Assault Support*, MCWP 3-24 (Washington, D.C.: Government Printing Office, 2004), A-1.

loaded infantry.⁸⁴ The helicopters responsible for providing assault support to the 4th Marine Expeditionary Brigade during the planned amphibious assault were sufficient to transport a small portion of the forces ashore. Due to the limited number of assault aircraft assigned to the Marine expeditionary brigade, they could, not then or now, move the entire assault echelon ashore within the timeframe of the amphibious assault's assault phase.

Twenty-First Century

The Osprey, is a pillar of the Expeditionary Maneuver Warfare concept. The Osprey is replacing the Sea Knight helicopter as the primary assault support platform. It can carry twenty-four combat-loaded Marines a distance of 250 miles at speeds reaching 255 knots.⁸⁵ The Marine Corps currently has fourteen Sea Knight helicopter squadrons in the operating forces, all of which are scheduled for replacement by the \$120 million Osprey at a rate of two squadrons (twelve aircraft each) per year. In the end, the Marine Corps will have 360 Osprey tiltrotor aircraft spread across twenty-four squadrons. Approximately 240 Ospreys should be in the operating forces by 2020, if current projections of replacing two squadrons per year are kept. However, the program has been plagued with complications that could well delay the Osprey from reaching full implementation on schedule.⁸⁶

There are currently six functional medium lift, tiltrotor helicopter squadrons functioning

⁸⁴ Brown, *U.S. Marines in the Persian Gulf, 1990-1991: With Marine Forces Afloat in Desert Shield and Desert Storm*, 229; Department of Defense, *Conduct of the Gulf War*, 109, 677; Denise L. Almond, ed., *Desert Score*, 71.

⁸⁵ Marine Corps, *U.S. Marine Corps Concepts and Programs 2009*, 125.

⁸⁶ Jane's Information Group, "Marine Corps," *Jane's Sentinel Security Assessment – North America*, 06 January, 2010, <http://search.janes.com>, (accessed on 06 January 2010); Jeremiah J Gertler, *V-22 Osprey Tilt-Rotor Aircraft: Background and Issues for Congress*, Congressional Research Service, RL-31384 (Washington, D.C.: Government Printing Office, 2009), 1-8; Mark Thompson, "V-22 Osprey: A Flying Shame," *Time*, (September 26, 2007), <http://www.time.com/time/politics/article/0,8599,1665835,00.html> (accessed February 9, 2010).

in the Fleet Marine Forces.⁸⁷ The Marine Corps has started to replace Sea Knight detachments with the Osprey squadrons on some Marine expeditionary unit deployments. When fielding is completed, each Marine expeditionary brigade should have thirty-six Ospreys.⁸⁸ The Marine expeditionary brigade's Osprey group will have the capacity to lift a single Marine infantry battalion at one time. It is reasonable to expect that after the first assault wave, the enemy, alerted to the Osprey, or any other large relatively low-flying, and slow moving formation, would inflict significant aircraft losses on follow-on waves. The Osprey group cannot physically move the entire assault echelon ashore without suffering considerable casualties in aircraft and Marines regardless of the distance from ship to objective. Therefore, it is not realistic to expect that the aircraft of the Marine expeditionary brigade have the ability to move the entire assault echelon ashore within the timeframe of the assault phase of the amphibious assault.

Conclusion and Recommendations

Can the Marine Corps conduct a brigade amphibious assault using the modern operating doctrinal concept of Expeditionary Maneuver Warfare? The Navy and Marine Corps do not currently have the proper platforms in sufficient quantities to conduct a Marine expeditionary brigade amphibious assault from twenty-five miles out to sea. The lack of an amphibious assault vehicle capable of transiting the increased distances from the fleet to the beach is the primary factor preventing the use of the Expeditionary Maneuver Warfare and Seabasing doctrines. That is not to say that the Navy and Marine Corps cannot conduct an amphibious assault, but not by using the doctrine of Expeditionary Maneuver Warfare and Seabasing. If one were to watch a MEB plan, prepare and execute an amphibious assault today, it would resemble the same tactics,

⁸⁷ The medium helicopter squadron (HMM) is redesignated as medium tiltrotor squadron (VMM) once they possess MV-22s. U.S. Marine Aircraft Group 29, "Marine Aircraft Group Official Webpage," U.S. Marine Corps, <http://www.2maw.usmc.mil/mag29/mag29/default.asp> (accessed 09 February, 2010).

⁸⁸ Norman Polmar, "MV-22 Osprey Going To Sea", *Military.com*, (March 30, 2009). <http://www.military.com/forums/0,15240,187892,00.html> (accessed February 09, 2010).

techniques and procedures used during the Gulf War almost twenty years ago. The amphibious ships would still have to park within a mile or two of the beach to discharge the amphibious assault vehicles. The fleet's proximity to the beach would be well within the shallow-water mine and missile threat.

The Navy's amphibious assault ship program is an enduring limiting factor to the number of vehicles and cargo that is available to the Marine expeditionary brigade's assault echelon. The shipping shortage imposes operational risk on assault force, but does not prevent the Marine expeditionary brigade from conducting an amphibious assault. Of the Navy's thirty-three amphibious ships, ten percent are constantly in maintenance. This leaves thirty operational ships, or two fifteen-ship groups to support two Marine expeditionary brigades. The Marine Corps has stated that each expeditionary brigade requires nineteen ships to embark all the brigade's elements and equipment. The Navy cannot support the current the Marine Corps' amphibious assault requirement to provide lift for two complete Marine expeditionary brigade assault echelons. The Navy's current allocation is fifteen ships per Marine expeditionary brigade. The Navy allocation is insufficient to embark an entire Marine expeditionary brigade's complement of personnel, supplies, and equipment to the operating area. A Marine expeditionary brigade can conduct an amphibious assault with the current number of amphibious ships in the fleet, but only in a reduced capacity and by accepting increased operational risk to the success of the operations.⁸⁹

The amphibious ship situation remains a persistent issue in providing a reliable and ready amphibious lift capability for the expeditionary fighting vehicle brigade. A Marine expeditionary brigade requires seventeen amphibious assault ships to move just the assault echelon to its objective. On paper, the Navy has thirty-three amphibious assault ships, enough to easily lift one

⁸⁹ Keep in mind that two MEBs are the minimal requirement the Marine Corps has stated it can operate under, with operational risk. At any one time, the final three of the 30 ships that are not in either MEB are in dry docks undergoing maintenance. O'Rourke, *Navy LPD-17 Ship Procurement*, 5-7.

Marine expeditionary brigade and support an amphibious assault. The issue, however, is one of proximity and availability. The Navy's amphibious ships are spread across the globe. To gather seventeen ships at one location seems easy, but the Navy has not put together seventeen amphibious assault ships to support a Marine expeditionary brigade since 1964, when it had twice the amphibious ships it has today. The Navy's performance during the Gulf War exemplified the limitations of the Navy lift support, when it could only provide thirteen of the required twenty amphibious ships to 4th MEB. It is unrealistic to believe that the Navy could provide seventeen or even a reduced fifteen ships to lift a Marine expeditionary brigade to a modern-day conflict. Navy amphibious fleet size is an issue, however, the expeditionary fighting vehicle situation is a critical limiting factor for the Marine expeditionary brigade in executing and amphibious assault using Expeditionary Maneuver Warfare doctrine.

The expeditionary fighting vehicle is the linchpin and the critical limiting factor to enabling Expeditionary Maneuver Warfare. The vehicle is designed to move the assault force ashore from great distance out to sea where the amphibious assault fleet is safe from littoral threats. The current AAV7A1, amphibious assault vehicle can continue to land the assault echelon of the landing force, but from only two to three miles off the beach. The expeditionary fighting vehicle, when operational, will provide a robust, modern assault platform for the Marine Corps and fully enable the Navy's Seabasing doctrine.⁹⁰ However, the expeditionary fighting vehicle has yet to enter full production and will not have sufficient quantities within five years to make an operational impact on transitioning to an Expeditionary Maneuver Warfare doctrine of amphibious assault. Even when operational there will not be sufficient numbers of the assault vehicles to replace the current amphibious assault vehicle. Due to the program's increasing costs, procurement was cut by 50 percent. To demonstrate the future impact of the cuts on the

⁹⁰ Marine Corps, *U.S. Marine Corps Concepts and Programs*, 2009, 102.

expeditionary fighting vehicle's surface assault capability, consider the number of expeditionary assault vehicles required to land one of a Marine expeditionary brigade's three infantry battalions. A single infantry battalion would require approximately 190 expeditionary fighting vehicles, roughly 30 percent of the entire projected Marine Corps expeditionary fighting vehicle inventory.⁹¹ Until the expeditionary fighting vehicle is fielded and operating with all of the originally requested 1,025 vehicles, the Marine expeditionary brigade will not be capable of fully executing an amphibious assault using Expeditionary Maneuver Warfare.

The final issue discussed is the Marine Corps assault support aircraft situation. The state of assault aircraft used in amphibious assaults is a limiting, but a not show-stopping factor in fully enabling the Expeditionary Maneuver Warfare in the Marine expeditionary brigade's amphibious assault capacity. The current assault helicopter, the Sea Knight has been in service for almost half a century and is rapidly wearing out. The Osprey is replacing the Sea Knight as the Marine Corps' primary assault support aircraft and one of the pillars of Expeditionary Maneuver Warfare. The challenge lies in activating Osprey squadron faster than the Sea Knight squadrons wear out. In addition, the Osprey provides critical capabilities required to realize the advantages of Expeditionary Maneuver Warfare doctrine. Despite delays in fielding, the Osprey is finally reaching operational densities sufficient to influence small-scale amphibious assault capabilities. However, there are barely enough Ospreys in the entire active inventory to provide the number required in a Marine expeditionary brigade's air combat element. In addition, increasing costs forced a 50 percent cut in Osprey procurement. Delayed fielding, and continuing operations in Afghanistan inhibit the role the Marine Corps cannot deploy three full squadrons to support a Marine expeditionary brigade amphibious assault until it converts three additional medium helicopter squadrons to tilt-rotor. It will be several years, at best, until the operational forces have

⁹¹ See page 35 for procurement numbers.

enough Ospreys to support a Marine expeditionary brigade level amphibious assault. To maintain the assault support lift capability currently provided by the Sea Knight, the Navy and Marine Corps must pursue alternative procurement and fielding options or confront a vertical lift shortage that extends well beyond the amphibious forces of the Marine expeditionary brigade.

Recommendations

The Amphibious Shipping Requirement

The Marine Corps and Navy agree that there is a need for amphibious power projection. The quandary between the services is the number of amphibious ships that the Navy can provide to support the Marine expeditionary brigade amphibious assault. The Marine Corps should reconfirm with the Navy and Defense Department the three- Marine expeditionary brigade amphibious lift requirement. The Navy can only provide fifteen of the nineteen ships required to lift an entire Marine expeditionary brigade. The Marine Corps has shown that it can project sufficient combat power to get three Marine expeditionary brigade s ashore if it has the assault lift of nineteen operational ships for each Marine expeditionary brigade. The Navy's failure to provide sufficient amphibious shipping has resulted in the Marine Corps having to reduce the strategic amphibious assault capability from three to two Marine expeditionary brigades. To maintain the mandated three- Marine expeditionary brigade amphibious assault requirement, the third Marine expeditionary brigade would come ashore using follow-on shipping or aircraft and equipment from the Maritime Prepositioning ships.

The Navy needs to support the Marine Corps and provide the necessary amphibious lift for the strategic amphibious assault capability required by the Secretary of Defense. If the Navy cannot support the three Marine expeditionary brigade lift requirements established in the Navy's

“Lift II” study then the Navy should immediately initiate a new study.⁹² Nevertheless, short of reworking the same ground, the Navy must support the Marine Corps requirement and provide forty-two amphibious ships to lift the assault elements of two Marine expeditionary brigades.⁹³ Eventually, either the Navy will be obligated to provide nineteen ships to each Marine expeditionary brigade in order to eliminate the operational risk currently endured by the Marine expeditionary brigade, or the Marine Corps will need to find a new source of amphibious lift.

A Better Expeditionary Assault Vehicle

The expeditionary assault vehicle is the second part of the amphibious assault element that is in a critical stage of utility. The amphibious assault vehicle is an almost forty-year old, battle-proven warhorse of the Marine Corps in amphibious and land warfare. As early as 1988, the Marine Corps embraced the expeditionary fighting vehicle concept as the eventual replacement for the amphibious assault vehicle. Replacing the amphibious assault vehicle with the expeditionary assault vehicle was planned to begin in earnest in 2005, but technical, design, and performance deficiencies have delayed its fielding. The Marine Corps has resolved the major issues with the expeditionary assault vehicle, and full-rate production is scheduled to begin in 2015.

The Marine Corps' current acquisition of 573 expeditionary fighting vehicles, down from 1,025, leaves a gap of 452 vehicles. To fill this gap, the Marines Corps must take steps now to create a stable amphibious assault vehicle inventory. The Marine Corps should either explore the

⁹² The Lift II Study was conducted by the Department of the Navy in 1991 and supported the requirement to lift 3.0 MEB assault echelons to the objective area with an estimated 45 amphibious ships. Senate, Armed Services Committee, Subcommittee on Readiness and Support Management, *Readiness of U.S. Armed Forces for All Assigned Missions*, Testimony of Lieutenant General Emil R. Bedard, Deputy Commandant of the Marine Corps for Plans, Policies and Operations, 107th Cong., 2nd sess, March 21, 2002, 8.

⁹³ The breakdown of the types of ships to support the forty-two ship fleet would be as follow: 13 LHAs/LHDs, 16 LSD-41/49s and 13 LPD-17s. Over time, the LSD-41/49s could be replaced with LPD-17s, further simplifying maintenance issues for the Navy.

feasibility of procuring another vehicle to fill the vehicle void or retain 40 percent of the current AAV7A1, amphibious assault vehicle fleet for the next thirty years to augment the expeditionary fighting vehicle fleet. The only other choice is for Congress to allocate an additional \$4.3 billion to purchase the required vehicles. To fund the additional cost the Marine Corps must petition the Navy for a larger piece of the Department of the Navy budget. The Marine Corps need to request a one percent (\$462M) increase for the next ten years to fund the additional \$4.3 billion shortfall for the expeditionary fighting vehicle. One percent may seem like a small temporary increase, but the Marine Corps procurement budget is a very small amount of the total Navy Budget. The Marine Corps fiscal year procurement appropriation is only 2.9 percent of the total Navy budget for Marine Corps procurement.⁹⁴ An increase of one percent, would be a 33percent increase in the Marine Corps procurement budget, though relatively small in actual dollars, it is a large percentage increase, and could create resistance within the Department of the Navy.

Maintaining a Robust Aviation Lift Capability

The Marine Corps must look into a blending of the Osprey program with existing medium lift platforms. Projected aviation lift capabilities provided by the Osprey will be insufficient to support the Marine Corps. The Osprey is currently operational within the Marine Corps and since full production is well underway, it is infeasible that stopping current production and starting the entire procurement process over would be considered. The Marine Corps initially projected procuring 552 Ospreys to provide its amphibious lift capability into the future. However, ballooning research and production costs forced the Marine Corps to reduce its requirement to 360 Ospreys, which creates a significant aviation lift gap for the Marine Corps. The shortage in

⁹⁴ Department of the Navy 2011 base appropriation is for \$46.2B. USMC base procurement is for \$1.34B or 2.9% Navy procurement, down from 6.3% in 2010 and 10.3 in 2009(OCO funds removed for 2011 only). This calculation includes only surface platforms and does not include Navy aviation procurements for the Marine Corps. Department of Defense, *Fiscal year 2011 Budget Request: Procurement Programs (P-1)*, Exhibit P-1 to the FY2011 President's Budget (Washington, D.C.: Government Printing Office, 2010), N-1, N-2.

Ospreys directly affects the number available for deployment with amphibious forces such as the Marine expeditionary brigade. Since not all amphibious assaults require a high-speed, high-altitude air assault force, integrating new helicopter models into the Marine expeditionary brigade's air combat element may close the lift gap and provide operational flexibility to the force.⁹⁵

Blending existing platforms, such as the Sikorsky MH-60S Nighthawk helicopter into the inventory gives the Marine Corps a proven platform to surge into the amphibious fleet more quickly and economically than a pure Osprey procurement. To close the Osprey lift gap, a purchase of three hundred Nighthawks is required. The Nighthawks could be paid for by reducing the Osprey purchase by about seventy airframes from 360 to 290. The new, blended medium-lift force of 300 Nighthawks and 290 Ospreys would give the needed lift, while providing the MEB a highly flexible and proven maritime aviation platform. Many efficiencies are created for the Marine Corps by purchasing the Nighthawk, such as no research or start-up costs, and an existing Navy training, maintenance, and supply program. The Nighthawk, though less capable, is less than one-quarter the price of the Osprey and can still lift a squad of Marines into combat, as the Army has done for years with the UH-60 Blackhawk.⁹⁶

Since the twentieth century, the requirement for maintaining a robust strategic amphibious assault entry capability has remained a relevant and necessary element of military power. The Secretary of Defense has consistently renewed the three-Marine expeditionary

⁹⁵ Christopher Bolkcom, *V-22 Osprey Tilt-Rotor Aircraft*, RL31384, Congressional Research Service (Washington, D.C.: Government Printing Office, 2005), 2.

⁹⁶ The 2011 budget request provides the projected costs of the MH-60 (18 MH-60 / \$548.7M = \$26.5M/MH-60) and the UH-60 (71 UH-60 / \$1351.1M = \$18.8M/UH-60). The actual cost of a Marine MH-60 would probably fall between \$18.8M and \$26.5M. For initial standup of support and training the higher cost of \$30M per MH-60 Marine Corps variant was used to simplify calculations and rounding issues. The Osprey has been priced at \$120M apiece. Department of Defense, *Fiscal year 2011 Budget Request: Program Acquisition Costs by Weapon System* (Washington, D.C.: Government Printing Office, 2010), 1-18, 1-22.

brigade requirement since 1994. The Marine Corps has some significant challenges to realize its ability to conduct a single Marine expeditionary brigade amphibious assault twenty-five miles over-the-horizon from its objectives as required by Expeditionary Maneuver Warfare doctrine. Though Marine Corps Commandant General James T. Conway has stated that amphibious training and exercises have deteriorated since 2002, the Marine Corps maintains the skill and flexibility to conduct a Marine expeditionary brigade-sized amphibious assault. Current equipment is a factor to enabling the Marine expeditionary brigade in conducting an amphibious assault using Expeditionary Maneuver Warfare.

Present amphibious shipping availability, amphibious assault vehicle, and assault aircraft combine to bind the Marine Corps to a traditional, twentieth-century style amphibious assault. Shipping and assault aircraft are limiting factors that can be adapted and modified to provide a reduced capability to employing Expeditionary Maneuver warfare. The significant, show-stopping issue is the expeditionary assault vehicle. The Navy and Marine Corps both need the expeditionary fighting vehicle or a vehicle with the capability to traverse the twenty-five miles of ocean that is required under the Seabasing doctrine in Expeditionary Maneuver Warfare. The Navy can no longer safely support amphibious operations within the site of the shore. The changing nature of the Navy's littoral threat since the 1990s, has made it extremely hazardous to expose amphibious warfare ships to modern anti access weapons such as anti ship missiles and shallow-water mines. Expeditionary Maneuver Warfare doctrine encompasses the changing nature of the littoral threat.

The Marine Corps has responded to the new doctrine's requirements by initiating equipment capable of meeting those needs. However, the equipment necessary to enable the doctrine is not yet fully operational. Additionally, the Navy is reducing its amphibious fleet, to levels that impose operation risk on the Marine expeditionary brigade during the conduct of an amphibious assault. With the advent of Seabasing, the Navy is on the cusp of prohibiting its large surface ships to move within sight of the coast. The Marine Corps and Navy should incorporate

the recommendations in this study to assist in fielding the amphibious warfare ships, assault vehicles, and assault support aircraft necessary in meeting the requirements for executing Expeditionary Maneuver Warfare. By ensuring that the Marine expeditionary brigade can conduct an amphibious assault using Expeditionary Maneuver Warfare doctrine the Navy and Marine Corps will position the military to maintain a potent and effective amphibious forcible entry capability for the United States throughout the twenty-first century.

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